AMENDMENTS TO THE CLAIMS

1.   (Currently amended) A method for classifying plant ~~embryo quality~~ embryos according to their quantifiable characteristics comprising:

(a)   developing a single metric classification model by

(i)   acquiring raw digital image data of reference samples of whole plant embryos or any portion thereof ~~from plant embryos~~ of known ~~embryo quality~~ quantifiable characteristics;

(ii)   calculating a metric value from the acquired raw digital image data of each embryo of known ~~embryo quality~~ quantifiable characteristics;

(iii)   dividing the metric values obtained in step (a)(ii) into two sets of metric values according to their known ~~embryo quality~~ quantifiable characteristics;

(iv)   calculating a Lorenz curve from the two sets of metric values;

(v)   using any point on the Lorenz curve calculated in step (a)(iv) as a threshold value to arrive at a single metric classification model for classifying plant embryos by ~~embryo quality~~ their quantifiable characteristics;

(b)   acquiring raw digital image data of a whole plant embryo or any portion thereof ~~from a plant embryo~~ of unknown ~~embryo quality~~ quantifiable characteristics; and

(c)   applying the developed single metric classification model to the raw digital image data of step (b) in order to classify the ~~quality of the~~ plant embryo of unknown ~~embryo quality~~ quantifiable characteristics according to its presumed quantifiable characteristics.

2.   (Currently amended) A method according to Claim 1 wherein two or more single metric classification models derived from different metrics are combined using one or more classification algorithms to develop a classification model for classifying plant embryos ~~by~~ ~~embryo quality~~.

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3. (Original) A method according to Claim 1, wherein the raw digital image data acquired in step (a)(i) is preprocessed using one or more preprocessing algorithms before step (a)(ii); the raw digital image data acquired in step (b) is preprocessed using one or more preprocessing algorithms; and step (c) is carried out using the preprocessed raw digital image data.

4. (Original) A method according to Claim 3, wherein the preprocessing algorithm removes raw image data that is not from the plant embryo or plant embryo organ.

5. (Original) A method according to Claim 3, wherein the preprocessing algorithm reduces the amount of raw image data.

6. (Original) A method according to Claim 1 wherein the raw digital image data is acquired from more than one view of the plant embryo or plant embryo organ.

7. (Currently amended) A method according to Claim 1 wherein the ~~plant embryo quality is~~ quantifiable characteristics comprise morphology.

8. (Currently amended) A method according to Claim 1 wherein the ~~plant embryo quality is~~ quantifiable characteristics comprise embryo conversion potential.

9. (Original) A method according to Claim 1 wherein the plant embryo is a plant somatic embryo.

10. (Original) A method according to Claim 9 wherein the plant is a tree.

11. (Original) A method according to Claim 10 wherein the tree is a member of the order *Coniferales*.

12. (Original) A method according to Claim 10 wherein the tree is a member of the family *Pinaceae*.

13. (Original) A method according to Claim 10 wherein the tree is selected from the group consisting of genera *Pseudotsuga* and *Pinus*.

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14.   (New) The method according to Claim 1 wherein the quantifiable characteristics are conversion potential, resistance to pathogens, drought resistance, heat resistance, cold resistance, salt tolerance, preference for light quality, or suitability for long term storage.

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